Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Cost of care: total resource use population-based per member per month (PMPM) index.

Source(s)

Total cost of care and resource use technical guidelines. Minneapolis (MN): HealthPartners; 2012 May. 6 p.

Measure Domain

Primary Measure Domain

Related Health Care Delivery Measures: Use of Services

Secondary Measure Domain

Related Health Care Delivery Measure: Cost

Brief Abstract

Description

This measure is used to assess the total resource use index population-based per member per month (PMPM).

The Resource Use Index (RUI) is a risk adjusted measure of the frequency and intensity of services utilized to manage a provider's patients. Resource use includes all resources associated with treating members including professional, facility inpatient and outpatient, pharmacy, lab, radiology, ancillary and behavioral health services.

Calculations:

Risk Adjusted Total Resource Use PMPM = Total Resource PMPM / Risk Score

RUI = Risk Adjusted Resource Use PMPM / Peer Group Average Risk Adjusted Resource Use PMPM

Rationale

In 2009, health care spending represented 17.6 percent of the United States gross domestic product

(GDP) and it is expected to continue to rise to over 20 percent by 2018. This is the largest percentage of any developed nation in the world. Rising costs prohibit many from being able to afford insurance coverage and largely contributes to personal bankruptcies. Consequently, affordability of care has become an increasingly discussed issue. In spite of this, few publicly available cost and resource use measures exist. In 1995, HealthPartners developed the Total Cost of Care measure to bring awareness of health care costs to providers and patients, and to drive improved value for the health care dollar.

HealthPartners' population-based Total Cost of Care and Total Resource Use measures provide valuable information to health plans and providers on how to make health care more affordable without sacrificing quality or experience. Health plans and providers can use cost and resource use data to identify areas where they can lower cost by improving resource use or shifting to less expensive, yet equally effective resources — for example, use of a surgery center instead of a hospital where it is medically appropriate, without negatively impacting quality. Evidence supports this idea as depicted in various studies on diabetes care, in academic medical centers, across metropolitan statistical areas and in group practices in Minnesota. These studies conclude that increased cost does not result in increased quality, while quality is not sacrificed when resource use is optimized.

A key benefit of HealthPartners' population-based Total Cost of Care and Resource Use measures is the identification of potential overuse and underuse of health care services. For example, a primary care physician may be referring back pain patients to an orthopedic surgeon. Rather than managing the back pain in primary care, these patients may have increased specialist costs and potentially more back surgeries than would be expected for their population. Overuse of health care services has led to wide variation in health care cost and use across geographies. Studies suggest that Medicare spending would be decreased by almost 30 percent if medium and high spending geographies consumed health care services comparable to that of lower spending regions. Experts agree that reducing overuse can make care safer and more efficient.

Evidence for Rationale

Fisher ES, Wennberg DE, Stukel TA, Gottlieb DJ. Variations in the longitudinal efficiency of academic medical centers. Health Aff (Millwood). 2004;Suppl Vari:VAR19-32. PubMed

Kralewski JE, Dowd BE, Xu Y. Differences in the cost of health care provided by group practices in Minnesota. Minn Med. 2011 Feb;94(2):41-4. PubMed

Medicare Payment Advisory Commission (MedPAC). Report to the congress: increasing the value of Medicare. Washington (DC): Medicare Payment Advisory Commission (MedPAC); 2006 Jun. 267 p.

National Priorities Partnership. National priorities and goals. National Priorities Partnership convened by the National Quality Forum. [internet]. 2008

National Quality Forum (NQF). Waste not, want not: the right care for every patient. Washington (DC): National Quality Forum (NQF); 2009 Jun. 9 p. (Issue brief; no. 15).

Total cost of care and resource use white paper. Minneapolis (MN): HealthPartners; 2012 Jan. 12 p.

Turbyville SE, Rosenthal MB, Pawlson LG, Scholle SH. Health plan resource use: bringing us closer to value-based decisions. Am J Manag Care. 2011 Jan;17(1):68-74. PubMed

Primary Health Components

Resource use; total cost of care

Denominator Description

Risk score (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Total Resource Per Member Per Month (PMPM) = (Total Medical Total Care Relative Resource Values [TCRRV™]/Medical Member Months) + (Total Pharmacy TCRRV™/Pharmacy Member Months)

See the related "Numerator Inclusions/Exclusions" field.

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

To test the reliability of the Total Cost Index (TCI) and Resource Use Index (RUI) measures, the measures were applied to HealthPartners primary care Twin Cities metro area providers according to the measure specifications. Results were calculated for 2007, 2008 and 2009.

To measure the reliability of the TCI and RUI measures, a 90 percent random sample and a bootstrapping technique were employed. In these methods, reliability is measured as the mean of the variance between sampling iterations and the actual results. In addition, TCI and RUI measures were analyzed over time to demonstrate stability and sensitivity to provider changes or improvement initiatives.

In the 90 percent random sample method, members attributed to a provider group were randomly sampled at the 90 percent membership level without replacement. This was done to simulate variation within a provider group by leveraging their own population and case-mix. This method gives an indication of the repeatability of the measure by comparing how closely the actual total cost and resource use measures are to the 90 percent sampled averages. It also simulates any potential member selection bias.

In the bootstrapping method, members attributed to a provider group were randomly selected with replacement. This method maximizes variation around a provider group's total cost of care and resource use as each randomly selected iteration (sample population) does not truly represent the provider's case mix of patients. This method was performed using the same technique as the 90 percent random sample method to support and validate the results found.

To assess validity, the total cost of care and resource use measures were applied to HealthPartners primary care Twin Cities metro area providers according to the measure specifications. Additional standard utilization metrics were also applied to the underlying data in the actual and risk adjusted forms. The TCI and RUI findings are compared by provider group to the actual and risk adjusted utilization metrics to determine the accuracy of conclusions.

The total cost of care and resource use measures can differentiate between providers based on the cost per member and/or consumption of resources per member, if all other factors are equal. The Adjusted Clinical Groups (ACG) adjustment controls for variations in illness burden of the patients and peer grouping controls for various patient demographics, provider types and types of product. The remaining factors reflect what the provider can potentially impact.

Various strengths of correlation are seen between the total cost of care and resource use measures and known utilization metrics. These correlation strengths depend upon how fully encompassing the utilization metric is within the component being measured and whether the metrics are risk adjusted. For example, the admit count utilization measure is highly correlated to inpatient resource use, since the only factor not accounted for in the admit count measure is intensity (i.e., level of treatment). When risk adjustment is applied, the correlation is reduced as the illness burden variation is removed.

These measures are designed to evaluate the entire patient and/or provider. Since a person-centered measure does not currently exist, utilization metrics are used as a proxy to evaluate the correctness and accuracy of the conclusions drawn by the total cost of care and resource use measures. These comparisons and correlations should be considered directional and are not absolute. Utilization metrics do not measure intensity or cost per unit and are targeted to measure a specific service. Therefore the correlations to the total cost of care and resource use need interpretation, as high correlation is not always the ultimate goal or the expected result.

Evidence for Extent of Measure Testing

Total cost of care and resource use white paper. Minneapolis (MN): HealthPartners; 2012 Jan. 12 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Managed Care Plans

Other

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age 1 to 64 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Priority

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Not within an IOM Care Need

IOM Domain

Not within an IOM Domain

Data Collection for the Measure

Case Finding Period

Measurement year as determined by user (e.g., January 1 through December 31)

Denominator Sampling Frame

Enrollees or beneficiaries

Denominator (Index) Event or Characteristic

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Risk score

Note:

> For each member in the population, a risk score will be calculated by using risk adjustment software based on claims from the performance measurement period. A member's risk score is multiplied by the member's member months creating a member's total risk score.
> To determine which members to include in the Total Resource Use measure, there are several options available depending upon the business purpose and unit of measure. If the unit of measure is an entire community or health plan, all members should be included in the Total Resource Use measure. If the unit of measure is a provider group and members are required to select a provider, HealthPartners recommends using the member selected provider. When the member is not required to select a provider, the use of an attribution algorithm to identify the member's principal provider is recommended.
> Eligibility data is required to determine the number of months the member is active during the measurement period (member months). HealthPartners' measurement requires member to be active at least 9 of the 12 medical months of the measurement period to be included in this measure.

See the original measure documentation for additional information.

Exclusions

Members with less than 9 months of medical eligibility are excluded from this measure.

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Total Resource Per Member Per Month (PMPM) = (Total Medical Total Care Relative Resource Values [TCRRV™]/Medical Member Months) + (Total Pharmacy TCRRV™/Pharmacy Member Months)

Note:

> TCRRV™ measures resource consumption, quantifying resource use for all procedures and services provided in the health care system.
> Include all medical and pharmacy claims with a first date of service within a 12 month period that include 3 months of paid claims run out.
> All paid medical and pharmacy claims for the member are summarized to the member level with the $100,000 truncation method applied.

Refer to the original measure documentation for additional information.

Exclusions

Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Administrative management data

Pharmacy data

Provider characteristics

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Johns Hopkins Adjusted Clinical Groups (ACGs)

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Ratio

Interpretation of Score

Does not apply to this measure (i.e., there is no pre-defined preference for the measure score)

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

The Total Resource Use measure is based on a risk adjusted per member per month (PMPM) relative to a specified peer group or benchmark. The resource use measure is the risk adjusted total resources divided by the sum of the member months attributed to the provider. The total resources are the sum of the Total Care Relative Resource Values (TCRRV™), which are a standardized price value that acts in the same fashion as a dollar (refer to the original measure documentation for the TCRRV™ methodology).

Risk adjustment is performed using Adjusted Clinical Groups (ACG) developed by Johns Hopkins University. Attributed members are assigned a risk score based on diagnoses on claims from the performance measurement period, as well as member age and gender.

Standard of Comparison

not defined yet

Prescriptive Standard

Both the Total Cost of Care (TCOC) and Resource Use measures are typically compared to a peer group or benchmark, which generates an index relative to the peer group or benchmark.

Evidence for Prescriptive Standard

Total cost of care and resource use user guide. Minneapolis (MN): HealthPartners; 2012. 6 p.

Identifying Information

Original Title

Total resource use population-based PMPM index.

Measure Collection Name

Efficiency - Resource Use: Phase II

Measure Set Name

Non-Condition Specific Measures

Submitter

HealthPartners - Managed Care Organization

Developer

HealthPartners - Managed Care Organization

Funding Source(s)

HealthPartners

Composition of the Group that Developed the Measure

- Sue Knudson, HealthPartners (Senior Vice President, Health Informatics)
- Chad Heim, HealthPartners (Senior Director, Health Informatics)

Financial Disclosures/Other Potential Conflicts of Interest

None

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2012 Jan 31

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2012 Jan

Measure Maintenance

Every four years

Date of Next Anticipated Revision

2017 Feb

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in March 2016.

Measure Availability

Source available from the HealthPartners Web site .

For more information, contact the HealthPartners Health Informatics Department via e-mail at TCOCMeasurement@HealthPartners.com or visit https://www.healthpartners.com/public/tcoc/contact/ .

Companion Documents

The following are available:

Total cost of care (TCOC) and total resource use white paper. Minneapolis (MN): HealthPartners; 2013 Oct 7. 14 p. This document is available from the TCOC Web site .

TCOC toolkit. [internet]. Minneapolis (MN): HealthPartners; [accessed 2012 Dec 4]. [2]. This toolkit is available from the TCOC Toolkit Web site .

Total cost of care user guide and specifications. Minneapolis (MN): HealthPartners; 2011. 18 p. This document is available from the TCOC Measures in Use Web site .

NQMC Status

This NQMC summary was completed by ECRI Institute on December 3, 2012. The information was verified by the measure developer on January 4, 2013.

The information was reaffirmed by the measure developer on March 25, 2016.

Copyright Statement

Production

Source(s)

Total cost of care and resource use technical guidelines. Minneapolis (MN): HealthPartners; 2012 May. 6 p.

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